

FACT SHEET FOR NPDES PERMIT WA-000247-0

FACILITY NAME: WESTFARM FOODS – LYNDEN PLANT

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INTRODUCTION

The Federal Clean Water Act (FCWA, 1972, and later modifications, 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One of the mechanisms for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System of permits (NPDES permits), which is administered by the Environmental Protection Agency (EPA). The EPA has delegated responsibility to administer the NPDES permit program to the state of Washington on the basis of Chapter 90.48 RCW which defines the Department of Ecology's authority and obligations in administering the wastewater discharge permit program.

The regulations adopted by the state include procedures for issuing permits (Chapter 173-220 WAC), water quality criteria for surface and ground waters (Chapters 173-201A and 200 WAC), and sediment management standards (Chapter 173-204 WAC). These regulations require that a permit be issued before discharge of wastewater to waters of the state is allowed. The regulations also establish the basis for effluent limitations and other requirements which are to be included in the permit. One of the requirements (WAC 173-220-060) for issuing a permit under the NPDES permit program is the preparation of a draft permit and an accompanying fact sheet. Public notice of the availability of the draft permit is required at least thirty (30) days before the permit is issued (WAC 173-220-050). The fact sheet and draft permit are available for review (see Appendix A--Public Involvement of the fact sheet for more detail on the public notice procedures).

The fact sheet and draft permit have been reviewed by the Permittee. Errors and omissions identified in this review have been corrected before going to public notice. After the public comment period has closed, the Department will summarize the substantive comments and the response to each comment. The summary and response to comments will become part of the file on the permit and parties submitting comments will receive a copy of the Department's response.

GENERAL INFORMATION	
Applicant	WestFarm Foods
Facility Name and Address	8424 Depot Road Lynden, WA 98264
Type of Facility	Powdered Milk Production
SIC Code	2023
Discharge Location	Waterbody name: Nooksack River and to Nooksack River Indirectly through City of Lynden POTW Latitude: 48° 56' 52" N Longitude: 122° 27' 06" W (WFF Plant) Latitude: 48° 56' 16" N Longitude: 122° 27' 06" W (City of Lynden POTW)
Water Body ID Number	WA-01-1010

BACKGROUND INFORMATION

DESCRIPTION OF THE FACILITY

Industrial Process

WestFarm Food's (WFF) Lynden plant processes approximately four million pounds of whole milk per day and produces approximately 377,000 pounds of nonfat dry milk per day. Other products include condensed skim milk, evaporated milk, and cream.

Raw milk is first unloaded into storage silos. WFF maintains nine-each silos of 50,000 gallons capacity each in the receiving area. The raw milk is run through cream separators. The cream is stored in three-each cream storage silos with a capacity of 10,000 gallons each. Cream is trucked to other Darigold plants.

The skim milk fraction is directed to a combination of Blaw Knox TVR evaporator units, Rogers TVR evaporator units, and Wiegand MVR evaporator units. The resulting product is then sent to Rogers milk dryers. The dried milk is then transferred to storage bins (four-each of 150,000 pound capacity). The dried product is drawn out of the cone bottoms of the bins for bagging. The bags are stored in the warehouse prior to shipping.

The Lynden facility consists of an "Old Plant" and a "New Plant." The new plant recirculates its non-contact cooling water. The evaporators, separators, pasteurizers, and heat exchangers are cleaned in place by a fresh water wash and alternating cycles of caustic solution and acid solution. The word used to describe this process is clean-in-place (CIP). The most common washing sequence consists of a pre-rinse, a caustic wash, a post-rinse, and an acid sanitizing rinse. The inorganic cleaning chemicals used in the process include sodium hydroxide, phosphoric acid, and nitric acid. The resulting wastewater is then sent to a 50,000-gallon equalization tank where it undergoes pH adjustment using carbon dioxide. However, if sensors detect turbidity above a certain threshold in the plant wastewater, a valve is automatically switched in order to direct the high-strength wastewater to a 30,000-gallon shock tank.

PRETREATMENT WORKS

Equalization Tank/Carbon Dioxide Diffuser

The 50,000-gallon equalization tank is equipped with a carbon dioxide diffuser which is intended to lower the pH of the mainly caustic plant effluent. The carbon dioxide diffuser also has the capacity to raise the pH of strong acid solutions. Sodium hydroxide or sulfuric acid is added if the capability of the carbon dioxide to achieve compliance with pH limitations is temporarily insufficient.

Turbidity Meter/Diversion Valve/Shock Tank

In November 1998, WFF completed installation of a 30,000-gallon “shock tank.” At the same time, WFF installed turbidity meters. One turbidity meter monitors wastewater in the main receiving sump, and the second turbidity meter monitors wastewater in the outlet of the main indirect discharge sump. If either turbidity meter detects turbidity in excess of a certain threshold, a valve is activated which diverts the wastewater flow to the shock tank, as opposed to the 50,000-gallon surge tank to which it would normally flow. The wastewater from the shock tank is trucked to a dairy lagoon. The capability also exists to treat this wastewater in the dissolved air flotation system, if necessary.

Dissolved Air Flotation (DAF) Plant

The dissolved air flotation plant was installed in 1989 and is described in the Darigold (WFF) Engineering Report dated January 5, 1989. The indirect discharge limits for flow/BOD/TSS in the indirect discharge issued in 1994 were allocation-based, rather than technology-based.

As high strength wastewater is being trucked to a dairy lagoon and as WestFarms has an adequate BOD allocation in its permit, the WFF DAF plant is not being run at this time.

When the DAF system was operated, wastewater from the 50,000-gallon equalization tank was first introduced into a 500-gallon flocculation tank with capabilities for addition of acid, anionic polymer, and alum. Following mixing, the wastewater entered a DAF flotation tank with a capacity of approximately 7,000 gallons. Subsequent operating experience indicated that the TSS/BOD removal achieved by the DAF unit was relatively low unless the pH was lowered to approximately five. As WFF’s process wastewater is predominantly basic, acid addition was required to lower the pH to the desired level. Problems with malfunctioning in the acid addition system were the cause of a number of upsets at the Lynden POTW in the early 1990’s. Even if the acid system operated without malfunction, the resulting effluent pH range of 5.0 to 5.5 caused potential noncompliance with respect to the lower pH limitation of 5.0. In addition, it was found from operational experience that the DAF plant runs at a low efficiency when low strength wastewater was introduced into the system.

Sludge Storage and Disposal

When the DAF system was operated, the resulting sludge was stored in a 7,000-gallon tank prior to being hauled to a dairy lagoon or applied to crops. Whatcom County Health Department issued a letter in 1989 authorizing this method of disposal. As the DAF system is not being operated at this time, this tank is being used to store high pH wastewater for pH neutralization as described below.

pH Neutralization By Mixing of Wastestreams

As noted above, the greater part of pH control is achieved by means of addition of carbon dioxide in the 50,000-gallon equalization tank. In order to minimize the use of carbon dioxide and reduce the possibility of surcharging the neutralization capacity of that system, WFF has adopted a procedure for mixing wastewaters. Wastewater produced during the night is normally slightly acidic. Wastewater resulting from clean-in-place operations is normally basic.

Particularly basic clean-in-place wastewater generated during the day is stored in the tank formerly used for DAF sludge storage. The wastewater is bled into the 50,000-gallon equalization tank at night to neutralize the acidic wastestream.

Cooling Tower

A cooling tower was installed in the fall of 1995 and is used to lower the temperature of the cow water/non-contact cooling water prior to direct discharge to the Nooksack River by means of a stormsewer. The volume of the cow water/non-contact cooling water discharged is approximately 800,000 gallons per day maximum. Cow water consists of the water which is removed from the milk during the production of dry milk. The cow water typically contributes 400,000 gallons per day and the non-contact cooling water contributes approximately 400,000 gallons per day.

Discharge Outfall For Direct Discharge

The cooling/cow water temperature sampling/compliance point is located at the manhole in the street outside the WFF office building.

The cow water/non-contact cooling water joins the City of Lynden POTW effluent line at a point downstream of all treatment and disinfection processes. Ultimately, the cow water/non-contact cooling water is discharged through the City of Lynden POTW outfall, which consists of 166 feet of twenty-inch diameter ductile iron pipe, terminating in an F-shaped diffuser section at mid-channel. Over time, the gravel bar on the south side of the river has grown to the point where it has overridden the south diffuser lateral and plugged some of the diffuser ports. As a result, the end cap of one of the laterals was removed to restore the hydraulic capacity. Thus, the current configuration of the outfall is essentially an open-ended, twenty-inch diameter pipe.

The outfall was originally designed for a peak flow rate of 5.0 mgd, including 4.0 mgd peak hour flow from the wastewater plant and an additional 1.0 mgd from WFF.

At the time of the writing of this permit, the City of Lynden had undertaken construction to achieve an increased capacity of its POTW. It is anticipated that the basic configuration of the existing outfall will be retained, with possible addition of a reducer at the end of the outfall to increase the velocity at the orifice.

CITY OF LYNDEN POTW

The City of Lynden maintains a sewage treatment plant consisting of two oxidation ditches and two secondary clarifiers. Effluent BOD and TSS concentrations are normally in the range of 5 to 15 mg/L. The plant has generally operated well, with the notable exceptions of upsets mainly related to spills from the WFF plant. It is the opinion of the City of Lynden's consultant that pH excursions have been the primary cause of upsets. Spills of milk product, with their attendant high BOD concentrations, appear to be the second most prevalent cause of plant upsets.

At the time of the drafting of the proposed permit, the City of Lynden POTW plant was considered by the NPDES permit manager to have a rated capacity of 7,000 pounds per day of BOD₅, based on a rating of 3,500 pounds for each of the two oxidation ditches. (The biotower, which was originally rated at 5,000 pounds per day BOD removal, is no longer in operation.)

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The City of Lynden's letter of December 20, 1999, sets forth the City's industrial allocation for all industrial users of 4,500 pounds per day of BOD₅.

PERMIT STATUS

An NPDES permit was issued to WFF (then Darigold) on August 20, 1982. The permit contained the following limitations for discharge to the sanitary sewer:

250,000 gallons per day maximum flow
2,000 pounds per day BOD₅
600 pounds per day TSS

The NPDES permit issued to WFF (then Darigold) in 1982 expired on August 20, 1984.

The NPDES permit in effect prior to September 1994 authorized an indirect discharge flow of 250,000 gpd and a BOD of 2,000 gpd and suspended solids of 250 pounds per day. The existing permit for this facility was issued on September 13, 1994. The permit contains effluent limitations on indirect discharge flow (226,000 gpd/316,000 gpd depending on season), BOD₅ (5,011/5,300 pounds per day depending on season), TSS (1,460 pounds per day), and pH. In addition, the existing permit contains a direct discharge limitation of 1.0 mgd for flow, and temperature limitations of 86 degrees Fahrenheit (winter) and 74 degrees Fahrenheit (summer).

The permit limitations appearing in the 1994 WFF (then Darigold) permit were seasonal due to the difference between the POTW capacity allocated to infiltration and inflow during the summer and winter months, as well as the allocation of a portion of the seasonally unused Carriage House allocation. In addition, WFF (then Darigold) leased a portion of the Versacold/Ocean Spray capacity in order to increase the limitations over those appearing in the previous permit.

SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT

The WestFarm Foods – Lynden plant was last inspected by the Department in September 19, 2001.

On September 5, 2001, WFF experienced a milk spill of between 10,000 and 20,000 gallons at its milk receiving station. A Notice of Violation and Notice of Penalty were issued by the Department as a result of this violation.

As of May 2000, a Notice of Violation was in the process of being issued for a pH violation involving indirect discharge of wastewater with a pH of 2.0 in July 1999. A penalty is not expected for this violation as review of the recorder chart indicated that the out-of-compliance incident lasted less than fifteen minutes.

A Notice of Violation was issued to WFF on January 14, 2000, for a self-reported violation involving the discharge of approximately 11,000 pounds per day of BOD in May 1999. A Notice of Penalty was later issued for this violation.

On May 28, 1999, the Department issued WFF a Notice of Correction for an indirect discharge flow exceedance which occurred on March 25, 1999, in which records indicated a discharge of 227,000 gpd.

On March 26, 1999, WFF was issued an NOV for a January 1999 exceedance of the TSS limitation (indirect discharge) in the permit.

On February 5, 1999, WFF was issued an administrative order to hardpipe the tanker receiving area to the main sump no later than September 1, 1999. WFF subsequently completed this requirement in the summer of 1999. The same order contained the requirement that WFF submit to the Department, no later than June 1, 1999, an adequate spill/slug plan.

On November 25, 1998, WFF was issued an NOV for violations of the indirect discharge BOD limitations (July, August, and September 1998) and violations of TSS limitations (July and September 1998). In addition, the NOV referred to violations of temperature standards for its direct discharge (August 1998).

On October 30, 1998, WFF was issued an NOV for being the probable cause of interference and upsets at the City of Lynden POTW. The finding was based on nineteen different incidents cited by the Department. The incidents occurred in a period between February 1997 and September 1998.

On September 5, 1997, WFF was issued an NOV for indirect discharge TSS violations during March and April 1997 and a BOD violation (June 1997).

On April 4, 1997, WFF was issued an NOV for indirect discharge BOD violations (October and December of 1996) and TSS violation (December 1996) and a flow violation (January 1997).

On January 4, 1994, WFF (then Darigold) was issued a Notice of Violation for indirect discharge pH violations for the period between May 1991 and June 1993 for numerous pH violations. A Notice of Penalty was also issued for these violations.

WASTEWATER CHARACTERIZATION

The proposed wastewater discharge is characterized for the following regulated parameters:

Table 1: Wastewater Characterization, Indirect Discharge

Parameter	Minimum	Average	Maximum
Flow (gpd), daily maximum	127,500	0.1892	305,000
Flow (gpd), 2-day avg	131,800	0.1902	303,400
BOD ₅ (pounds/day)	196	1,465	11,494*
BOD ₅ (pounds/day) 2-day avg	231	1,465	4,004
BOD ₅ (mg/L)	156	942	3,564
TSS (pounds/day)	252	651	1,244
TSS (pounds/day) 2 day avg	300	650	1,413
TSS (mg/L)	145	375	780
pH, daily average	6.6	N/A	8.7

Note: The indirect discharge characterization is based on data reported on the City of Lynden monitoring reports for 1999.

* *The maximum BOD₅ discharge of 11,494 pounds per day occurred in May 1999. However, the actual discharge may have been lower as the City of Lynden calculated a total plant influent of approximately 8,800 pounds for that day.*

Table 2: Wastewater Characterization, Direct Discharge (Cow Water)

Parameter	Minimum	Average	Maximum
Flow (mgd), daily maximum	0.75	0.83	0.92
Temperature (degrees Fahr.), daily max	59	71.9	80
BOD ₅ (mg/L), daily max	2	5	6
TSS (mg/L), daily max	2	3.5	4

Note: The cow water values displayed in the table above are based on data submitted in discharge monitoring reports for 1998.

SEPA COMPLIANCE

The plant and related permit for this facility are preexisting and therefore are exempt from SEPA requirements for a checklist or environmental impact statement.

PROPOSED PERMIT LIMITATIONS--DIRECT DISCHARGE

Federal and state regulations require that effluent limitations set forth in an NPDES permit must be either technology- or water quality-based. Technology-based limitations are based upon the treatment methods available to treat specific pollutants. Technology-based limitations are set by regulation or developed on a case-by-case basis (40 CFR 125.3, and Chapter 173-220 WAC). Water quality-based limitations are based upon compliance with the Surface Water Quality Standards (Chapter 173-201A WAC), Ground Water Standards (Chapter 173-200 WAC), Sediment Quality Standards (Chapter 173-204 WAC), or the National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992). The more stringent of these two limits must be chosen for each of the parameters of concern. Each of these types of limits is described in more detail below.

The effluent constituents in the permit application were evaluated on a technology- and water quality-basis. The limits necessary to meet the rules and regulations of the state of Washington were determined and included in this permit. Ecology does not develop effluent limits for all pollutants that may be reported on the application as present in the effluent. Some pollutants are not treatable at the concentrations reported, are not controllable at the source, are not listed in regulation, and do not have a reasonable potential to cause a water quality violation. If significant changes occur in any constituent, as described in 40 CFR 122.42(a), the Permittee is required to notify the Department of Ecology.

SURFACE WATER QUALITY-BASED EFFLUENT LIMITATIONS

In order to protect existing water quality and preserve the designated beneficial uses of Washington's surface waters, WAC 173-201A-060 states that waste discharge permits shall be conditioned such that the discharge will meet established Surface Water Quality Standards. The Washington State Surface Water Quality Standards (Chapter 173-201A WAC) is a state regulation designed to protect the beneficial uses of the surface waters of the state. Surface water quality-based effluent limitations may be based on an individual waste load allocation (WLA) or on a WLA developed during a basin wide total maximum daily loading study (TMDL).

Numerical Criteria for the Protection of Aquatic Life

"Numerical" water quality criteria are numerical values set forth in the state of Washington's Water Quality Standards for Surface Waters (Chapter 173-201A WAC). They specify the levels of pollutants allowed in a receiving water while remaining protective of aquatic life. Numerical criteria set forth in the water quality standards are used along with chemical and physical data for the wastewater and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limitations, they must be used in a permit.

Numerical Criteria for the Protection of Human Health

The U.S. EPA has promulgated 91 numeric water quality criteria for the protection of human health that are applicable to Washington State (EPA, 1992). These criteria are designed to protect humans from cancer and other disease and are primarily applicable to fish and shellfish consumption and drinking water from surface waters.

Narrative Criteria

In addition to numerical criteria, "narrative" water quality criteria (WAC 173-201A-030) limit toxic, radioactive, or deleterious material concentrations below those which have the potential to adversely affect characteristic water uses, cause acute or chronic toxicity to biota, impair aesthetic values, or adversely affect human health. Narrative criteria protect the specific beneficial uses of all fresh (WAC 173-201A-130) and marine (WAC 173-201A-140) waters in the state of Washington.

Antidegradation

The state of Washington's Antidegradation Policy requires that discharges into a receiving water shall not further degrade the existing water quality of the water body. In cases where the natural conditions of a receiving water are of lower quality than the criteria assigned, the natural conditions shall constitute the water quality criteria. Similarly, when the natural conditions of a receiving water are of higher quality than the criteria assigned, the natural conditions shall constitute the water quality criteria. More information on the state Antidegradation Policy can be obtained by referring to WAC 173-201A-070.

Critical Conditions

Surface water quality-based limits are derived for the water body's critical condition, which represents the receiving water and waste discharge condition with the highest potential for adverse impact on the aquatic biota, human health, and existing or characteristic water body uses.

Mixing Zones

The water quality standards allow the Department of Ecology to authorize mixing zones around a point of discharge in establishing surface water quality-based effluent limits. Both "acute" and "chronic" mixing zones may be authorized for pollutants that can have a toxic effect on the aquatic environment near the point of discharge. The concentration of pollutants at the boundary of these mixing zones may not exceed the numerical criteria for that type of zone. Mixing zones can only be

authorized for discharges that are receiving all known, available, and reasonable methods of prevention, control, and treatment (AKART) and in accordance with other mixing zone requirements of WAC 173-201A-100. This permit contains a requirement that the Permittee conduct a Receiving Water and Effluent Study for Temperature and a Mixing Zone Study for Temperature.

The National Toxics Rule (EPA, 1992) allows the chronic mixing zone to be used to meet human health criteria.

Description of the Receiving Water

The facility discharges to the Nooksack River, which is designated as a Class A receiving water in the vicinity of the outfall. Other nearby point source outfalls include the City of Lynden POTW. Significant nearby non-point sources of pollutants include stormwater from the city of Lynden. In addition, the lower Nooksack Valley is the site of numerous dairies, which impact the Nooksack River, mainly through manure runoff. Agricultural runoff from crops such as raspberries, hay, and corn are also factors. Designated uses of the Nooksack River include the following: water supply (domestic, industrial, agricultural); stock watering; fish migration; fish rearing, spawning and harvesting; wildlife habitat; primary contact recreation; sport fishing; boating, and aesthetic enjoyment; and navigation. Water quality of this class shall markedly and uniformly exceed the requirements for all or substantially all uses.

Surface Water Quality Criteria

Applicable criteria are defined in Chapter 173-201A WAC for aquatic biota. In addition, U.S. EPA has promulgated human health criteria for toxic pollutants (EPA, 1992). Criteria for temperature, the relevant pollutant-of-concern are discussed below.

Basis for Interim Direct Discharge Temperature Limitations

The temperature of the direct discharge (cow water) frequently exceeds the water quality criteria for temperature. As a Temperature Mixing Zone Study has not yet been performed, and as a revision to the Surface Water Quality Standards is expected within the next nine (9) months, interim temperature limitations are recommended for the proposed permit. The following section sets forth the basis for the proposed interim temperature limitations. The interim temperature limitations are the same as the temperature limitations in the existing permit.

Calculation of Cow Water Temperature Limitation for Direct Discharge

Prior to the startup of the cooling tower, measurements of cow water indicated temperatures in the range of 90 degrees Fahrenheit at the final manhole prior to discharge to the Nooksack River. This manhole is located on the grounds of the City of Lynden POTW. The monitoring point for wastewater temperature specified in the permit is the manhole located by the railroad tracks outside the WestFarm office building in Lynden.

The Nooksack River is designated as water body number WA-01-020 in WAC 173-201A-130 and assigned to Class A. In the calculations described below, one quarter of the 7Q10 flow as authorized under WAC 173-201A-100(7)(a)(iii) is employed for use in the mixing calculations. The assumption has been made that the temperature mixing will be essentially complete by the time the flow reaches the maximum allowable downstream boundary of the mixing zone, which is 300 feet downstream of the outfall, within that portion of the river allocated the mixing zone.

**1.) “Temperature shall not exceed 18 degrees Celsius due to human activities.”
(WAC 173-201A)**

Of the three temperature criteria appearing in the Water Quality Criteria (WAC 173-201A), the maximum temperature limitation was determined to be the limiting factor. Temperatures in the Nooksack River have been observed to be as high as 17.9 degrees Celsius according to EILS (WDOE's Environmental Investigations and Laboratory Section) monitoring data. A POTW discharge of 1.6 mgd at 22.8 degrees Celsius (the highest temperature observed in the City of Lynden POTW effluent) was employed together with an ambient temperature of 17.9 degrees for the calculations. The maximum allowable temperature of the cow water discharge was calculated to be 23.3 degrees Celsius. The calculation based on maximum temperature was the limiting factor (i.e., resulted in the most stringent temperature limitation, when compared to temperature limitations derived from the other temperature-related provisions of WAC 173-201A) for the determination of the temperature limitation.

2.) “When natural conditions exceed 18 degrees Celsius, no temperature increases will be allowed which will increase the receiving water temperature by greater than 0.3 degrees Celsius.” (WAC 173-201A)

In winter, the temperature difference between the WFF (Darigold) cow water discharge and the ambient temperature of the river would be expected to be at its greatest. In addition, the temperature difference between the POTW discharge and the river would also be expected to be at its greatest. Therefore, the maximum change in the river temperature as a result of the WFF (Darigold) discharge would be expected to occur in winter. It is recognized that the ambient temperature of the river in winter is expected to be well below 18 degrees Celsius. Nevertheless, the winter temperature was examined as a possible limiting factor. In other words, if the proscribed temperature change would not occur in the winter, it would certainly not be expected to occur in summer.

One quarter of the 7Q10 flow was used in the calculation. The 7Q10 flow is 516 mgd. A discharge temperature of 22.8 degrees Celsius was assumed from the POTW at a flow rate of 1.6 mgd. The fact that the 7Q10 flows are unlikely to occur in the winter and that the discharge temperature used in the effluent was actually a summer discharge makes the calculation very conservative.

As a result of the above calculation, the WFF (Darigold) temperature limitation was calculated to be 50 degrees Celsius. This is far above the temperature calculated above and is thus not the limiting factor in determining the temperature discharge limitation for the cow water.

3.) Incremental temperature increases resulting from point source activities shall not at any time exceed $t=28(T+7)$, where t represents the maximum permissible temperature increase measured at a mixing zone boundary, and T represents the background temperature. (WAC 173-201A)

For the same reasons described in number 2, above, this condition is most likely to occur on a cold day in winter. Although a 7Q10 flow is not likely to occur in the winter, a flow of one quarter of the 7Q10 flow was again used. This assumption results in a conservative calculation, which is used to determine the boundary condition.

The following data and assumptions were used in the calculation of the cow water temperature limit with the incremental temperature increase requirement.

EAP temperature data for the Nooksack River indicates a minimum temperature of one degree Celsius.

The operating records of the Lynden POTW indicated that the maximum January effluent temperature is 15 degrees Celsius. This temperature was chosen for the effluent discharge temperature, as the minimum river temperature typically occurs in January. Thus the maximum temperature of the POTW discharge in January was chosen, as the maximum change in temperature would be expected to occur on a minimum river ambient temperature day during which the POTW discharge was maximum. The flow of 1.6 mgd was used for the flow from the City of Lynden POTW.

Under these conditions, the maximum allowable cow water temperature of 441 degrees Celsius was calculated. If the energy of change of state is taken into account, the allowable cow water discharge temperature would be between 100 degrees Celsius and 441 degrees Celsius.

The effect of the change of state energy requirements of the unknown mass of floating ice in the river surface was not taken into account in the calculations, due to the difficulty of establishing a reliable estimate of the mass of ice within the mixing zone. The presence of ice on the surface would tend to suppress the magnitude of the change of temperature and thus the omission of this effect is a conservative assumption.

Although a number of simplifying assumptions were made, the calculations demonstrate that condition three is not the limiting condition for determining the cow water temperature discharge limitation.

The above calculations indicate that the only time in which the river temperature is likely to violate the water quality standards at the mixing zone boundary is in the summer months when ambient river temperature approaches 18 degrees Celsius. Thus, a limitation of 74 degrees Fahrenheit is included in the permit for the months of June, July, August, and September. The maximum temperature limitation of 86 degrees Fahrenheit is chosen for the rest of the year when the water quality standards are less likely to be violated. As the existing discharge is already in the range of 80 degrees to 90 degrees Fahrenheit, and it is likely that significant capital expenditures must be made in order to meet the summer limitation, the Department will consider the 86 degree Fahrenheit limitation to be AKART for this plant for the non-winter months. The Department had considered a limitation of 90 degrees Fahrenheit as AKART, but 86 degrees Fahrenheit was chosen as the final limitation due to the fact that this limitation appeared in the previous permit, and under USEPA's interpretation of the Clean Water Act, cannot be rolled back.

Receiving Water and Effluent Study for Temperature and Mixing Zone Study for Temperature

The temperature limitation in the existing permit will be used as the interim temperature limitation in the existing permit. The direct discharge from the WFF plant does not meet the surface water quality criteria for temperature. During the internal peer review process performed on this permit, it was determined that the Department had incorrectly granted a mixing zone for temperature in the existing permit without requiring that a study be performed to delineate the boundaries of the mixing zone and demonstrate compliance with AKART. Therefore, the Department is requiring in the proposed permit that the Permittee perform a Receiving Water and Effluent Study for Temperature, as well as a Mixing Zone Study for Temperature with the goal of developing a recommendation for an effluent limitation for temperature.

The compliance date associated with submittal of the Plan of Study has been placed in the early part of calendar year 2003. The unusually long period between issuance of the proposed permit and the proposed milestone dates for the study submittals has been incorporated in the proposed permit in order to ensure that a pending revision of Chapter 173-201A WAC (Water Quality Standards for Surface Waters of the state of Washington) dealing with the water quality criteria for temperature, is promulgated prior to scoping of the study.

The cities of Lynden and WFF are encouraged to act cooperatively in the performance of the effluent and mixing zone study. It is anticipated that much of the temperature data needed for the study may be obtained from the City of Lynden effluent records, as well as publicly available temperature and flow data for nearby portions of the Nooksack River.

Evaluation of Potential for Direct Discharge Exceedance of Ammonia Criteria for Fresh Water

Raw milk contains significant concentrations of ammonia nitrogen (ammonia and ammonium ions quantified in terms of their nitrogen content). Due to the fact that ammonia nitrogen can be carried over with a distillate, mainly depending on pH conditions during distillation, the presence of some ammonia nitrogen in cow water distillate would not be unexpected.

Based on information submitted in WFF's application, the maximum daily concentration of ammonia nitrogen measured in the cow water/cooling direct discharge effluent was 0.34 mg/L. This measured value is well below the state water quality criteria for the applicable range of temperatures as calculated below. The temperatures of 15 degrees and 20 degrees Celsius were used for the calculations as these temperatures are specified for determination of ammonia standards for chronic and acute conditions respectively, for salmonid-bearing streams. In addition, for sensitivity analysis purposes, criteria at an unusually high temperature (27 degrees Celsius) were also calculated, as the criteria become lower (more stringent) with higher temperatures. The ammonia nitrogen criteria for the entire applicable range of temperatures appear to be well above the highest value measured by WFF. The proposed quarterly monitoring frequency for ammonia nitrogen is intended to serve as a periodic check to indicate if ammonia concentrations in the direct discharge effluent reach a level of concern. The proposed permit will require monitoring one time each three (3) months. This data acquired from the quarterly monitoring will be used in order to determine whether more frequent monitoring becomes necessary in the future. The daily average chronic criterion at twenty degrees is included as the daily maximum ammonia-nitrogen criterion. The rationale for using ammonia nitrogen as a limitation, rather than the un-ionized subset, is that final equilibrium of this most toxic of the two compounds will be determined mainly by the pH in the Nooksack after mixing.

AMMONIA NITROGEN CRITERIA AT SELECTED TEMPERATURES		
Temperature, degrees Celsius	Chronic Ammonia-Nitrogen Criterion (mg/L)	Acute Ammonia Nitrogen Criterion (mg/L)
10	2.19	16.8
15	2.10	16.2
20	1.45	15.8
27	0.89	9.6

PROPOSED PERMIT LIMITATIONS--INDIRECT DISCHARGE

Daily Maximum BOD₅ Limitation for Indirect Discharge for the Proposed Permit

The City of Lynden's letter of December 20, 1999, contained an industrial wastewater allocation for WFF of 4,500 pounds per day for BOD₅. The City of Lynden subsequently consented to the issuance of a permit to Versacold with a BOD₅ limitation of 400 pounds per day. The BOD₅ limitation in the proposed permit is 4,500 pounds per day based on a two-day average. The basis for the limitation is the City's 4500 pound per day limitation to WFF, less the 400 pound per day limitation in the Versacold permit, plus 400 pounds per day from the allocation made by the City to reserve capacity.

Determination of the TSS Limitation for **Indirect** Discharge for the Existing Permit

The TSS limitation of 1,460 pounds per day consisted of the originally allocated 250 pounds per day augmented by an additional 1,210 pounds of capacity subleased from Ocean Spray/Versacold.

Basis of the TSS Limitation for **Indirect** Discharge for the Proposed Permit

The TSS limitation in the proposed permit is a maximum two day average limitation of 1,460 pounds per day. The limitation is based on the City of Lynden letter of December 20, 1999, in which the City presented their allocation of daily maximum TSS as 1460 pounds per day.

Determination of pH Limitation for Indirect Discharge

The pH limitation in the permit issued in 1994 was "not outside the range of 5.0 to 11.0." The proposed permit introduces a new pH limitation of 6.0 to 10.0, although excursions with a duration of no greater than fifteen minutes between 3.5 and 6.0, and between 10.0 and 12.0, are authorized provided that they do not exceed a combined duration of seven hours and twenty six minutes per month. In addition no greater than two such excursions are authorized in any single day. Furthermore, a maximum of five such excursions are authorized during any seven consecutive operating days.

The new limitation allowing discharges with pH's between 6.0 and 10.0 is based on the City of Lynden Ordinance. The "combined duration" sub-clause is adapted from the NPDES regulations appearing in 40 CFR Part 401.17. WAC 173-216-040(2)(b)(iv) allows the Department to authorize discharges outside the normal minimum of 5.0, and the normal maximum of 11.0 in those cases in which the POTW is designed in such a manner as to accept such discharges. The City of Lynden has interpreted its own ordinance as authorizing temporary deviations from the limitation of 6.0 to 10.0. An important factor in the Department's determination to allow excursions outside the normal limitations is the extremely limited time duration for which the excursions are authorized.

Determination of Flow Limitation for Indirect Discharge

The flow limitation in the existing permit is based on the City of Lynden letter of December 20, 1999, in which the City of Lynden presented a flow limitation of 226,000 gallons per day to WFF.

Comparison of Limitations in the Proposed Permit With Those in the Existing Permit (Indirect Discharge)

COMPARISON OF EXISTING AND PROPOSED INDIRECT DISCHARGE LIMITATIONS		
Parameter	Proposed Permit	Existing Permit
Flow, daily max, June-Sept, gpd	N/A	316,000
Flow, daily max, Oct-May, gpd	N/A	226,000
Flow, 2-day moving avg., gpd	226,000	N/A
BOD ₅ , June-Sept, daily max, pounds/day	N/A	5,011
BOD ₅ , Oct-May, daily max., pounds/day	N/A	5,300
BOD ₅ , 2-day moving avg., pounds/day	4,500	N/A
TSS, June-Sept, daily max., pounds/day	N/A	1,460
TSS Oct-May, daily max., pounds/day	N/A	1,460
TSS, 2-day moving avg., pounds/day	1,460	N/A
pH, std units	6.0-10.0	5.0-11.0
pH, std units, 15 minute variance	3.5-6.0, 10.0-12.0	N/A

Human Health

Washington's water quality standards now include 91 numeric health-based criteria that must be considered in NPDES permits. These criteria were promulgated for the state by the U.S. EPA in its National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992).

Cow water is the sole known source of direct discharge wastewater from the WFF plant. As the cow water is a condensate, it is unlikely to contain pathogens or mineral contaminants. Although ammonia might conceivably be present in measurable quantities, there is no human health criterion for ammonia. Therefore, the Department has determined that the applicant's discharge is unlikely to contain chemicals regulated for human health. Temperature change due to the effluent would be expected to increase human survival time in primary contact uses. The potential of ammonia nitrogen concentrations to exceed water quality criteria for ammonia is discussed in the previous section.

Sediment Quality

The Department has promulgated Aquatic Sediment Standards (Chapter 173-204 WAC) to protect aquatic biota and human health. These standards state that the Department may require Permittees to evaluate the potential for the discharge to cause a violation of applicable standards (WAC 173-204-400).

The condensate nature of the cow water, the sole known constituent of the direct discharge from the WFF plant, makes it highly unlikely that mineral or solid material would be present in the discharge in sufficient quantities to contribute any known material to the sediment. Therefore, the Department has determined that this discharge has no reasonable potential to violate the Sediment Management Standards.

GROUND WATER QUALITY LIMITATIONS

The Department has promulgated Ground Water Quality Standards (Chapter 173-200 WAC) to protect beneficial uses of ground water. Permits issued by the Department shall be conditioned in such a manner so as not to allow violations of those standards (WAC 173-200-100).

This Permittee has no discharge to ground and, therefore, no limitations are required based on potential effects to ground water.

MONITORING REQUIREMENTS

Monitoring, recording, and reporting are required (WAC 173-220-210 and 40 CFR 122.41) to verify that the treatment process is functioning correctly and the effluent limitations are being achieved.

The monitoring schedule is detailed in the proposed permit under Condition S.2. Specified monitoring frequencies take into account the quantity and variability of the discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring.

Prior to late 1998, the City had monitored BOD₅ daily composite values approximately five or six days per week. Subsequent interviews with WFF staff indicated that high loadings are also likely to occur on weekend days. Therefore, the Department requested that the City begin monitoring on a seven-day per week schedule. The seven-day per week monitoring schedule was commenced in late 1998.

Constant monitoring and recording of pH is cost effective and necessary to determine compliance with pH standards. The necessity of constant monitoring is a result of the great variability of WFF indirect discharge pH experienced in the past, together with the relatively limited effects of dilution in making pH-noncompliant discharges compatible with treatment at the POTW. Noncompliant pH discharges, even if relatively brief in nature, have been cited by the City of Lynden consultant to be the most likely causes of past upsets at the City of Lynden POTW.

Despite the fact that relatively brief pH spikes can be the cause of upsets, the Department also recognizes that at some point pH spikes may be so brief as to be of little consequence with respect to their effect on the POTW. Therefore, the Department has added language to the effect that noncompliant spikes lasting less than fifteen minutes will not be considered to be violations, provided that the spikes are within a certain range (no less than 3.5, nor greater than 12.0).

LAB ACCREDITATION

With the exception of certain parameters, the permit requires all monitoring data to be prepared by a laboratory registered or accredited under the provisions of Chapter 173-50 WAC, *Accreditation of Environmental Laboratories*.

OTHER PERMIT CONDITIONS

REPORTING AND RECORDKEEPING

The conditions of S3. are based on the authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 273-220-210).

TREATMENT SYSTEM OPERATING PLAN

In accordance with state and federal regulations, the Permittee is required to take all reasonable steps to properly operate and maintain the treatment system [40 CFR 122.41(e)] and WAC 173-220-150 (1)(g). An operation and maintenance manual will be submitted as required by state regulation for the construction of wastewater treatment facilities (WAC 173-240-150). It has been determined that the implementation of the procedures in the Treatment System Operating Plan is a reasonable measure to ensure compliance with the terms and limitations in the permit.

SOLID WASTE PLAN

The Department has determined that the Permittee has a potential to cause pollution of the waters of the state from leachate of solid waste. Under the authority of RCW 90.48.080, the proposed permit contains the requirement that the Permittee submit an update of its Solid Waste Plan to the Department.

SPILL AND SLUG DISCHARGE PLANS

The existing permit required the Permittee to submit a Spill Plan no later than March 1995. The Permittee developed and submitted a plan for preventing the accidental release of pollutants to state waters and the accidental release of excessive pollutants to the sanitary sewer and for minimizing damages if such a spill occurs. The plan also addresses slug discharges in that it describes procedures such as control of the levels in the equalization tank at the time of initiation of clean-in-place (CIP) operations. An administrative order issued by the Department on February 5, 1999, required the Permittee to update and submit “an adequate Spill/Slug Plan” no later than June 1, 1999. The Permittee submitted an improved plan in accordance with this requirement. The proposed permit contains a requirement that the Permittee submit a Spill Plan Update.

By late 1998, WFF had purchased a phone/radio communication system to be carried by the chief engineer during the day and the engineers at night. The communication system sends an alarm signal to the radio when a spill alarm is activated or if pH values exceed certain set points.

In addition, the Permittee was required by the same order to submit a Slug Discharge Plan no later than June 1, 1999. The Slug Plan is intended to serve as a set of procedures and best management practices to be used to prevent discharges of wastewater which would upset or cause interference at the City of Lynden POTW. Submittal of a revised Slug Discharge Control Plan Update is required under the existing order no later than March 15, 2001. The Permittee has submitted a Slug Plan in accordance with this requirement. The proposed permit contains the requirement that WFF submit a Slug Discharge Control Plan Update no later than November 15, 2002. The Permittee is required to review its Slug Discharge Control Plan and to update it, as necessary.

In order to reduce the magnitude of slug discharges, WFF has added a system to collect Rogers/Wiegand evaporator caustic to enable holding and dribbling of this concentrated stream over a twenty four hour period.

UPSET PROVISIONS

The existing permit contains a provision which describes conditions under which the Permittee may utilize the occurrence of an upset as an affirmative defense with respect to enforcement action. The proposed permit contains an upset provision in the General Condition Section.

GENERAL CONDITIONS

General Conditions are based directly on state and federal law and regulations and have been standardized for all individual industrial NPDES permits issued by the Department.

PERMIT ISSUANCE PROCEDURES

PERMIT MODIFICATIONS

The Department may modify this permit to impose numerical limitations, if necessary, to meet Water Quality Standards for Surface Waters, Sediment Quality Standards, or Water Quality Standards for Ground Waters, based on new information obtained from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

The Department may also modify this permit as a result of new or amended state or federal regulations.

RECOMMENDATION FOR PERMIT ISSUANCE

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to control toxics, protect human health, aquatic life, and the beneficial uses of waters of the state of Washington. The Department proposes that this proposed permit be issued for such a period as to expire in state fiscal year 2005, in order to make the expiration date consistent with the Activities Schedule for Watersheds used by the Department. State fiscal year 2005 begins July 1, 2004, and lasts through June 30, 2005. Therefore, it is proposed that this permit expire on June 30, 2005.

APPENDIX A--PUBLIC INVOLVEMENT INFORMATION

The Department has tentatively determined to reissue a permit to the applicant listed on page one of this fact sheet. The permit contains conditions and effluent limitations which are described in the rest of this fact sheet.

Public Notice of Application (PNOA) was published on May 10, 2000, and May 17, 2000, in the *Lynden Tribune* to inform the public that an application had been submitted and to invite comment on the reissuance of this permit.

The Department published a Public Notice of Draft (PNOD) on January 30, 2002, in the *Lynden Tribune* to inform the public that a draft permit and fact sheet were available for review. Interested persons were invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents were available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Written comments were mailed to:

Water Quality Permit Coordinator
Department of Ecology
Northwest Regional Office
3190 – 160th Avenue SE
Bellevue, WA 98008-5452

Any interested party may comment on the draft permit or request a public hearing on this draft permit within the thirty (30) day comment period to the address above. The request for a hearing shall indicate the interest of the party and reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft permit (WAC 173-220-090). Public notice regarding any hearing will be circulated at least thirty (30) days in advance of the hearing. People expressing an interest in this permit will be mailed an individual notice of hearing (WAC 173-220-100).

The Department will consider all comments received within thirty (30) days from the date of Public Notice of Draft indicated above, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from the Department by telephone, (425) 649-7201, or by writing to the address listed above.

APPENDIX B--GLOSSARY

Acute Toxicity--The lethal effect of a compound on an organism that occurs in a short period of time, usually 48 to 96 hours.

AKART--An acronym for “all known, available, and reasonable methods of treatment.”

Ambient Water Quality--The existing environmental condition of the water in a receiving water body.

Ammonia--Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

Average Monthly Discharge Limitation--The average of the measured values obtained over a calendar month's time.

Best Management Practices (BMPs)--Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural, and/or managerial practices to prevent or reduce the pollution of waters of the state. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

BOD₅--Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD₅ is used in modeling to measure the reduction of dissolved oxygen in a receiving water after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the Federal Clean Water Act.

Bypass--The intentional diversion of waste streams from any portion of a treatment facility.

Chlorine--Chlorine is used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

Chronic Toxicity--The effect of a compound on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

Clean Water Act (CWA)--The Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

Compliance Inspection - Without Sampling--A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

Compliance Inspection - With Sampling--A site visit to accomplish the purpose of a Compliance Inspection - Without Sampling and as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the 85 percent removal requirement. Additional sampling may be conducted.

Composite Sample--A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples. May be "time-composite" (collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots).

Construction Activity--Clearing, grading, excavation, and any other activity which disturbs the surface of the land. Such activities may include road building, construction of residential houses, office buildings, or industrial buildings, and demolition activity.

Critical Condition--The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.

Dilution Factor--A measure of the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. Expressed as the inverse of the percent effluent fraction, e.g., a dilution factor of 10 means the effluent comprises 10% by volume and the receiving water 90%.

Engineering Report--A document which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

Fecal Coliform Bacteria--Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

Grab Sample--A single sample or measurement taken at a specific time or over as short period of time as is feasible.

Industrial Wastewater--Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

Major Facility--A facility discharging to surface water with an EPA rating score of >80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Maximum Daily Discharge Limitation--The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

Method Detection Level (MDL)--The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is above zero and is determined from analysis of a sample in a given matrix containing the analyte.

Minor Facility--A facility discharging to surface water with an EPA rating score of <80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Mixing Zone--An area that surrounds an effluent discharge within which water quality criteria may be exceeded. The area of the authorized mixing zone is specified in a facility's permit and follows procedures outlined in state regulations (Chapter 173-201A WAC).

National Pollutant Discharge Elimination System (NPDES)--The NPDES (Section 402 of the Clean Water Act) is the federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the state of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/state permits issued under both state and federal laws.

pH--The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

Quantitation Level (QL)--A calculated value five times the MDL (method detection level).

Responsible Corporate Officer--A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function or any other person who performs similar policy- or decision-making functions for the corporation or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or have gross annual sales or expenditures exceeding \$25 million (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures (40 CFR 122.22).

Technology-based Effluent Limit--A permit limit that is based on the ability of a treatment method to reduce the pollutant.

Total Suspended Solids (TSS)--Total suspended solids is the particulate material in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

State Waters--Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

Stormwater--That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

Upset--An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

Water Quality-based Effluent Limit--A limit on the concentration of an effluent parameter that is intended to prevent the concentration of that parameter from exceeding its water quality criterion after it is discharged into a receiving water.